UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,769	02/25/2002	George G. Barclay	51065	4396

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EXAMINER
WALKE, AMANDA C

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
09/04/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 November 2007 and 23 June 2008</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>37-40,45-47 and 49-57</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>37-40, 45-47, and 49-57</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 6/23/2008 and 11/5/2007 have been entered.

### *Claim Rejections - 35 USC § 103*

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claims 37-40, 45-47, and 49-57 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Fujishima et al. (EP 982628 A2) with Rahman (US 6610465 B2) cited to show

inherent in view of Willson et al. (US 6103445 A).

Fujishima exemplifies the synthesis of resin A and resin H that have the following

structures: (resin A; p. 0035)
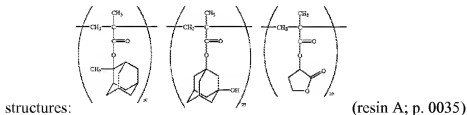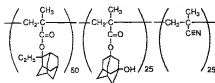
(resin H; p. 0043). See also resins C, D, I and J. Example 7

forms a photoresist composition comprising resin H; p-tolyldiphenylsulfonium

trifluoromethanesulfonate as an acid generator; 2,6-diisopropylaniline as a quencher; and 2-

heptanone as the solvent. The said composition was applied to a silicon wafer; exposed using a

KrF excimer stepper; and developed to form a pattern (p. 0047-0049). Example 11 forms a

photoresist composition comprising resin A; p-tolyldiphenylsulfonium perfluorooctane sulfonate

as an acid generator; 2,6-diisopropylaniline as a quencher; and propylene glycol monomethyl

ether acetate and γ-butyrolactone as the solvent mixture. The said composition was applied to a

silicon wafer; exposed using an ArF excimer stepper; and developed to form a pattern (p. 0052-

0054). See also example 3.

　　It is the examiner's position that the second monomer in each of resins A and H meets the

　　limitation of a hydroxyadamantyl moiety. The third monomer of resin A meets the

　　limitations of a lactone which is readily acid labile. The hydroxyadamantyl methacrylate is

　　also readily acid labile. This position is supported by the teachings of Rahman which

　　discloses that 3-hydroxy-1-methacryloyloxyadamatane, β-methacryloyloxy-γ-butyrolactone

　　and α-methacryloyloxy-γ-butyrolactone are examples of acid labile (meth)acrylates (c. 6, l.

　　56-63). The third monomer of resin H meets the limitation of a nitrile moiety as set forth in

　　instant claim 40. The first monomer of each of the resins A and H meet the limitation of an

　　alicyclic acid labile ester group as set forth in instant claims 39. Furthermore the examiner is

of the position that a silicon wafer meets the limitation of a microelectronic wafer substrate

as set forth in instant claim 46.

Although, Fujishima fails to exemplify a polymer comprising a polymer that is a

tetrapolymer it clearly teaches that taught resin (1) having recurring units of formula (I), (II) and

(III) may also have polymerization units of formula (IV) α-methacryloyloxy-γ-butyrolactone or

formula (V) maleic anhydride (p. 0008-0011 and 0014-0024). One of ordinary skill in the art

would readily envisage a tetrapolymer comprising recurring unit of formula (I), (II), (III) such as

that exemplified in resin H and a recurring unit of formula (IV) or formula (V) as disclosed in

paragraphs 0008-0011.

Fujishima, as discussed above, teaches all the limitations of the instant claims except the

presence of a polymerized norbornene group, however does suggest in p. 0022 that a

norbornene-type unit may be included.

. Willson (US '445) teaches that the cycloaliphatic backbone of polymers having the

generic formula: (Fig. 1) serves to provide dry etch-resistance and thermal stability

and also serves to tether the pendant functionalities required for imaging. The said system also

has high sensitivity. The said polymer introduces a pendant acid cleavable group, which

enhances adhesion and solubility of the material in aqueous base developing solvent (c. 15, l. 1-

28). It is the examiner's position that the said generic formula meets the limitation of a

polymerized norbornene group as set forth in the instant claims. One of ordinary skill in the art

would have been motivated by the teachings of Willson to incorporate cycloaliphatic backbones

having the said generic formula into the exemplified resins A or H of Fujishima in order to

improve dry etch-resistance, thermal stability as well as sensitivity, adhesion and solubility of the

formed material.

Response to Arguments

3.   Applicant's arguments filed 11/5/ 2007 and 6/23/2008 have been fully considered but

they are not persuasive. Applicant again argues that there is no motivation in the Fujishima (EP

982628 A2) reference to employ 4 recurring units to have a tetrapolymer or to include a

norbornene groups. As discussed above, although, Fujishima fails to exemplify a polymer

comprising a polymer that is a tetrapolymer it clearly teaches that taught resin (1) having

recurring units of formula (I), (II) and (III) may also have polymerization units of formula

(IV) α-methacryloyloxy-γ-butyrolactone or formula (V) maleic anhydride (p. 0008-0011 and

0014-0024). One of ordinary skill in the art would readily envisage a tetrapolymer comprising

recurring unit of formula (I), (II), (III) such as that exemplified in resin H and a recurring unit of

formula (IV) or formula (V) as disclosed in paragraphs 0008-0011. Also, Fujishima, teaches all

the limitations of the instant claims except the presence of a polymerized norbornene group,

however does suggest in [0022] that a norbornene-type unit may be included.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Amanda C. Walke whose telephone number is 571-272-1337.

The examiner can normally be reached on M-R 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Amanda C Walke
Primary Examiner
Art Unit 1795

/Amanda C Walke/
Primary Examiner, Art Unit 1795